

Local Energy Assurance Planning: 2013 Initiative

Michigan Public Service Commission

June 4, 2013



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MPSC's Role in Emergency Management

The energy emergency responsibilities of the MPSC can be grouped into five broad categories:

Development	Develop, administer, and/or coordinate energy emergency contingency plans
Monitoring	Monitor Michigan's energy supply system to detect unusual imbalances that may indicate the potential for an energy emergency and advise the appropriate state officials
Communication	Maintain ongoing contact with the petroleum, natural gas, and electric industries concerning Michigan's energy supply and recovery efforts
Coordination	Act as the communication focal point for federal, state and local activities related to energy emergency preparedness, planning and management
Support	Provide situation reports in the event of an emergency or disaster; support the State Emergency Operations Center (SEOC) as needed.



Energy Assurance

The goal of energy assurance planning is to achieve a robust, secure and reliable energy infrastructure that is also resilient — able to restore services rapidly in the event of any disaster.

- Creation of effective responses that minimize consequences and provide a rapid recovery and a return to normal conditions?
- Measures taken to help prevent a disruption from occurring (reduce threats) and defend against those disruptions (reduce vulnerabilities) once they have occurred.



Why Now?

Department of Energy:

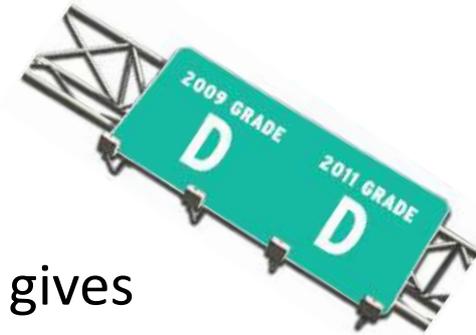
In the US, 513 significant outages from 2002 to 2008
Increased focus on energy assurance planning

Threats and Hazards

- Aging Energy Infrastructure
- Severe Weather Events
- Cyber Intrusions
- Geopolitical Conflict

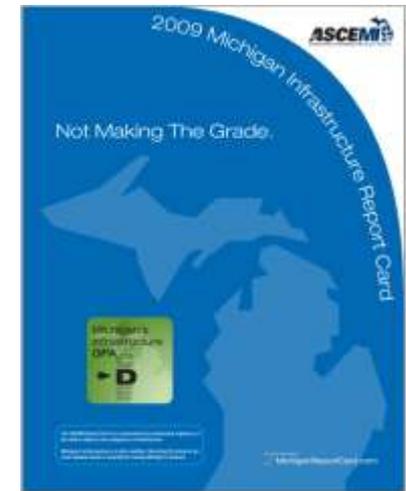


Aging Energy Infrastructure



The American Society of Civil Engineers report card gives Michigan's infrastructure a "D" rating:

- **Bridges:** 25% of bridges in Michigan are structurally deficient or functionally obsolete..
- **Dams:** Over 90% of Michigan's 2,581 dams will reach or exceed their design life by 2020.
- **Roads:** 38% of Michigan's roads are in poor or mediocre condition. This costs each Michigan motorist approximately \$357 annually, about \$2 billion.
- **Energy:** Distribution and transmission systems for both electric and natural gas are in need of update.
- **Drinking water:** 11.8 billion needed over the next 20 years.
- **Wastewater:** 3.7 billion is needed over the next 20 years.



Severe Weather

June 30, 2012

Derecho Storm – Eastern US

- Consecutive record heat days
- At least 13 dead
- 3 million without power
- State of Emergency: Ohio, Virginia, West Virginia, Washington, D.C.



October, 2012

Super storm Sandy – East Coast

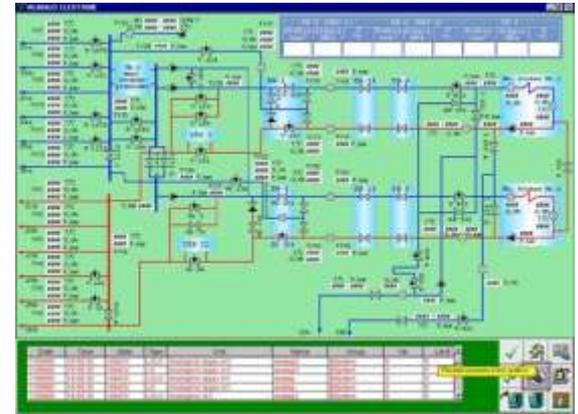
- 125 deaths
- 8.5 million energy customers interrupted
- Petroleum shortage in NY and NJ
- \$62 billion in property damage/business loss
- 72,000 homes damaged/destroyed in NJ



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Cyber Attack / Intrusion

“In 2012 alone, attacks against the energy sector comprised over 40% of all incidents reported to ICS-CERT.” - DHS



Geopolitical Conflict

Straits of Hormuz – World Oil Chokepoint



- Political instability in Iran
- 17 million bbl/day
- 35% of seaborne traded oil
- Nearly 20% of world oil production

Presidential Policy Directive/ PPD-8: National Preparedness

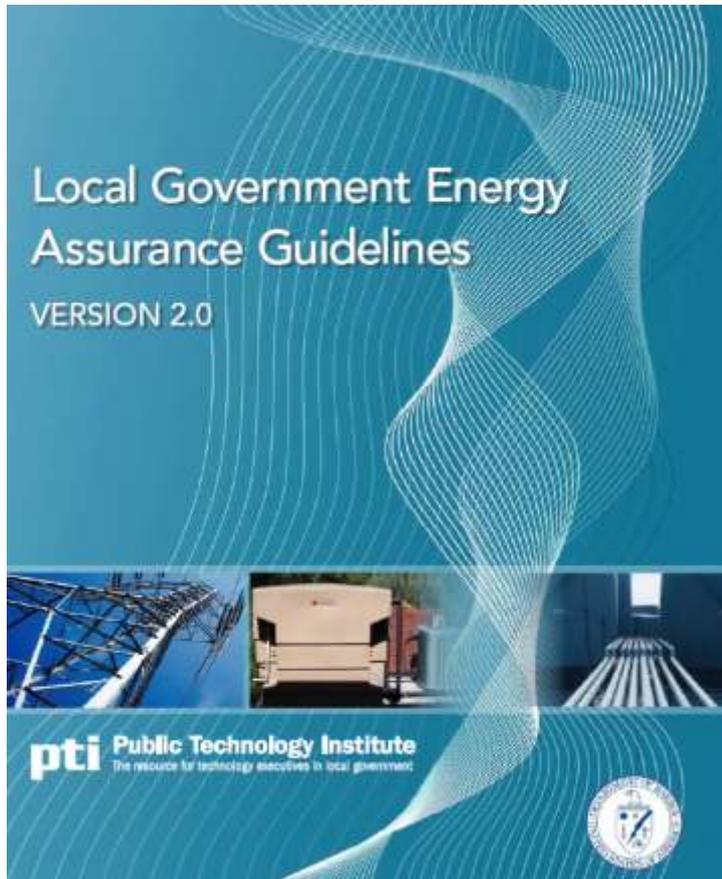
“Whole Community Approach”

- Individuals
- Businesses
- Local government

“...We cannot only look at the role that government plays, we must also work with the entire community – both the public and private sectors, faith based and non-profit organizations, and most importantly the public”



LEAP Federal Guidance



Public Technology
Institute



<http://energyassurance.us/>

LEAP, What is it?

A plan to respond and recover from an energy disruption based on a complete understanding of the local jurisdiction. It creates.....

- A general awareness of energy systems and critical infrastructure
- Points of contact with energy suppliers and users
- An understanding of response measures, backup power systems



Background

Emergency Management & Homeland Security Division
Michigan State Police

4000 Collins Rd., Lansing, MI 48915
Phone (517) 336-6196
Fax (517) 333-4967
www.michigan.gov/emhsd



2012 LEAP Conferences
2013 District Roll Out



Region 1 Launch

May 22, 2013

- State Police EMHSD
- Hospitals
- Water Facilities
- Universities
- Food Processors
- Petroleum and Natural Gas Pipeline Owners
- Electric Utility Companies
- State Government Offices



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LEAP Content

- Organizational Structure
- Legal Framework
- Roles and Responsibilities
- **Energy Profile and Suppliers**
- **Energy Users**
- Energy Preparedness Measures
- **Priority Restoration and Allocations**
- **Curtailment Plans and Waivers**
- Crisis Communications
- Notification and Response



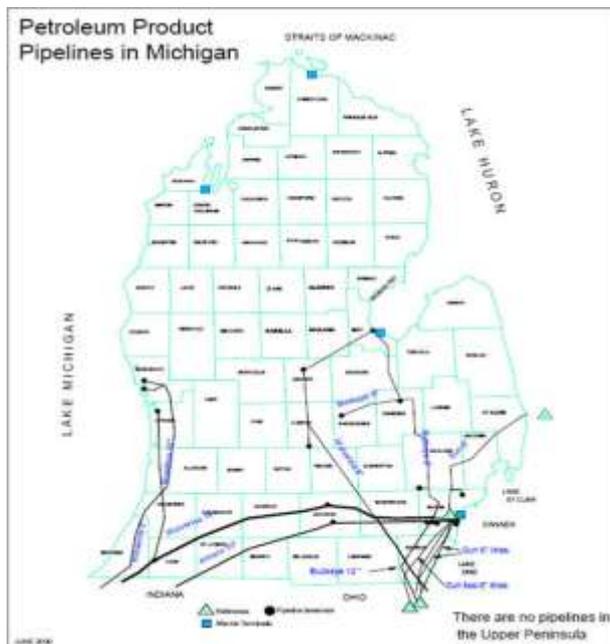
Key Energy Users

Identifies non-residential user facilities that are highly dependent on a given source of energy to provide an essential community service.



Energy Profile and Suppliers

A region's general knowledge of its energy sources, energy usages, and nature of supply fluctuations is a precursor for identifying vulnerabilities in the region's energy system and selecting appropriate response actions.



LARA Public Service Commission
Department of Licensing and Regulatory Affairs

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Michigan Energy Overview

Michigan Public Service Commission, LARA
October 2011

Background

Michigan is relatively limited in most energy resources and imports 97 percent of its petroleum needs, 62 percent of its natural gas and 100 percent of coal and nuclear fuel from other states and nations. These imports account for about 72 cents of every dollar spent for energy by Michigan's citizens and businesses. Michigan spent a total of \$31.3 billion on all forms of energy in 2009 and of that amount \$22.6 billion was for the energy resources imported from other states and nations.

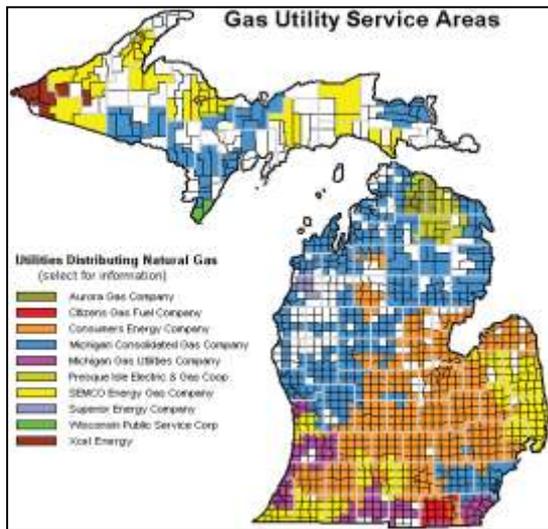
Michigan's total energy consumption is relatively high, due in part to the State's large population, northern climate and industrial sector. Energy-intensive activities in the State include durable goods manufacturing, such as by the automotive, glass, metal castings, chemical industries, mining and pulp and paper manufacturing/production.

- Michigan Population - 9.9 million, U.S. Rank 8th (2010)
- Michigan Gross Domestic Product - \$366.4 billion in 2009, U.S. Rank 12th
- Crude Oil Reserves - 33 million barrels, 0.2 percent of U.S. total reserves, with 3,000 producing wells (2009)
- Natural Gas Reserves - 2,763 billion cubic feet, share of U.S. 1.0 percent, producing wells 10,000 (2009)
- Natural Gas Use - 746.8 trillion British Thermal Units (BTU) per year, U.S. Rank 9th (2009)



Priority Restoration and Allocations

Focuses on more severe energy emergencies where the utility may not have complete information to make decisions regarding which facilities provide an essential service.



Michigan Service Areas of Electric and Gas Utilities

Click on the first letter of the city that you are looking for.
If you would like to download the entire listing in CSV format, click [here](#).
(Note: users should right-click file and select 'save as' to download the CSV file.)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

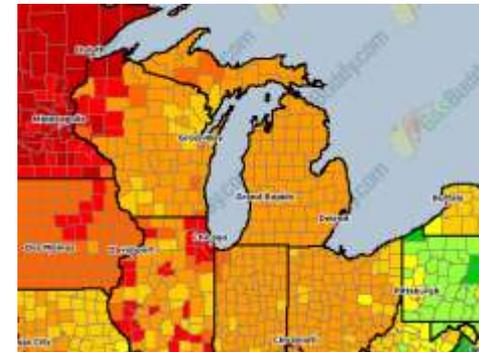
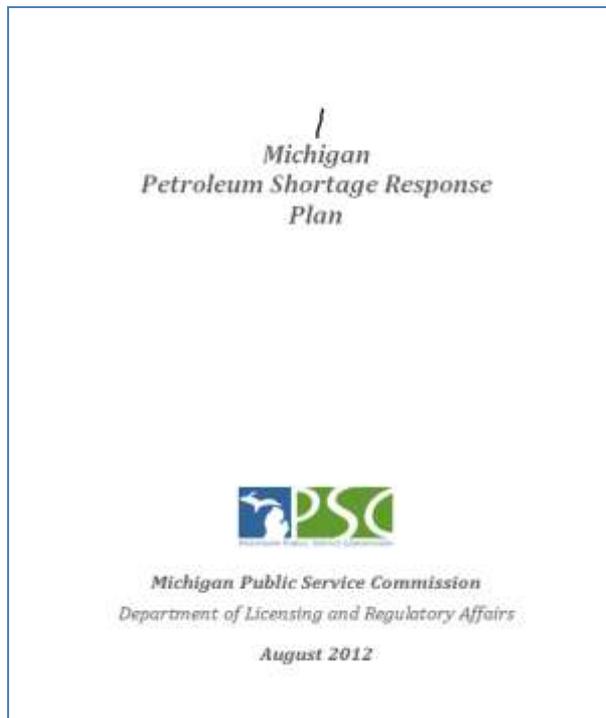
Tova Search Use ** for wildcards

Michigan Town/City	Electric Utility	Gas Utility
Adri	Consumers	MichCo
Adri	Detroit Edison	Consumers
Adrian	Consumers	Consumers
Adrian	Consumers	Oldens Gas
Adriatic	E.P. Power	Consumers
Adrian	Detroit Edison	Consumers
Adrian	Consumers	Consumers
Adrian	Consumers	MichCo
Adrian	Consumers	SEMCO
Adrian	Consumers	Consumers
Adrian	Detroit Edison	SEMCO
Adrian	Consumers	MGT
Adrian	Consumers	MGT
Adrian Park	Detroit Edison	MichCo
Adrian	Detroit Edison	Consumers
Adrian	E.P. Power	Consumers
Adrian	Consumers	Consumers
Adrian	Detroit Edison	Consumers
Adrian	Alcona Power	MichCo
Adrian	Wisconsin Electric	Consumers
Adrian	E.P. Power	Consumers



Curtailment Plans and Waivers

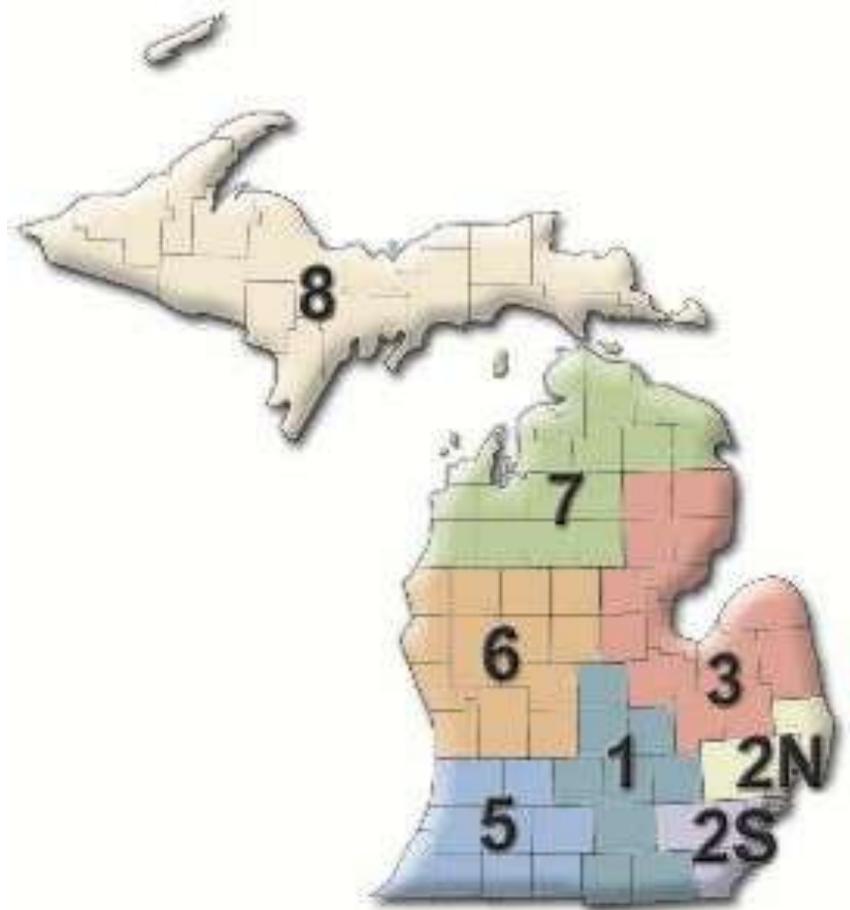
Informative section highlighting response measures available for petroleum, electrical and natural gas emergencies



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LEAP Template for Michigan

- Template developed based on Department of Energy guidance
- Input needed for sections with region specific data
- Regional planning teams will work to complete the document



10 energy-related considerations for achieving a resilient water supply systems?



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1. Get to know your local energy suppliers.

- Natural Gas
- Electricity
- Petroleum
- Propane



2. Plan for outages lasting months

2003 NE Power Outage

Days



Hurricanes / Super Storms

Weeks



Terrorist Attacks – High Voltage Transformers

– Weeks to Months



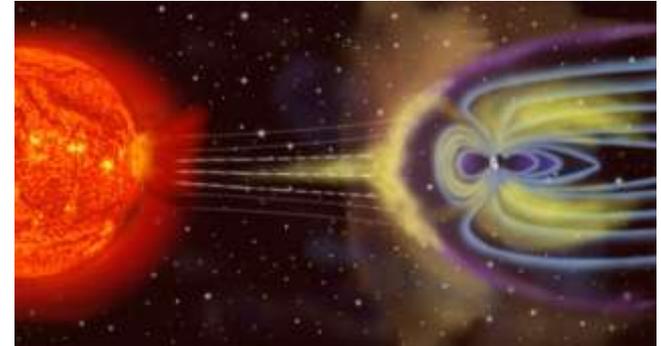
Cyber Attack – Multi-wave Attack

Months



Coronal Mass Ejection / Electro Magnetic Pulse

Months to Years



3. Identify those energy-dependent processes key to providing any essential community service

- Pumps
- SCADA Systems
- Groundwater Wellheads



4. Select appropriate backup power generators:

	Diesel ¹	Natural Gas ²	Propane ³	Gasoline
Fuel Storage	+	+	+	-
Fuel Delivery Method	-	+	-	-
Generator Availability	+	-	-	+
Generator Portability	-	-	-	+

¹ Assume a consumption rate of 0.07 gallons per hour for every 1kW of power generated.

² Assumes access to a pipeline. Can use propane as a backup fuel, but requires an adapter.

³ Use the generator specification sheet to calculate expected runtime for a given load and propane tank capacity.

U.S.E.P.A



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5. Consider the right location for backup power generators:

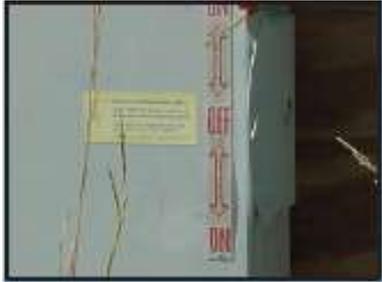
- Where fuel source unlikely to contaminate source waters.
- Locate above potential floodwater levels.
- Consider a weatherproof enclosure.
- Install on flat concrete surface in secure area.

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6. Consider appropriate hookup options for backup power generators:



- TRANSER SWITCHES allow for ease in switching back and forth between commercial and generator power sources.



- CAMLOCKS allow you to connect a mobile generator directly to a critical piece of equipment.



- VARIABLE FREQUENCY DRIVES can supply power under a variety of horsepower demands.

U.S.E.P.A



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7. Contract for Emergency Fuel Supplies: Key Questions

- Can they be contacted 24/7/365?
- Do they have sufficient trucks and drivers?
- Do they have a Fuel Quality Control Program?
- Does their truck loading require electricity?
- How far must they travel for deliveries?
- Given the size of their customer base, what assurances are there sufficient fuel supply is available to meet their contracted needs?



8. Join mutual aid consortiums



The screenshot shows the MIWARN website homepage. At the top, the logo features a blue silhouette of Michigan with the text "MI & W&W" in red, followed by "WARN" in large red letters. Below the logo is the tagline "utilities helping utilities" and "Michigan Water/Wastewater Agency Response Network". A navigation bar includes links for Home, Mutual Aid Agreement, MIWARN Regions, Links/Downloads, and Contact. The main content area is dated "Friday, May 24, 2013" and has "Register | Login" links. A prominent red heading reads "Active Emergencies". Below this, a message states "There are no active emergencies at the moment!". A sub-section titled "In an emergency, utilities may request assistance from other utilities by:" lists two steps: 1. Logging onto the website, and 2. Accessing the "Broadcast Emergencies" subdirectory through the "Members" area on the navigation bar. A photograph on the right shows a massive water main break on a city street, with a large plume of water spraying upwards and a fire truck nearby. A caption below the photo reads "Water main breaks can create a dangerous situation for your community". A sidebar on the left contains text about joining MIWARN and a section for "Already a Member?".

www.miwarn.org



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9. Exercise Water Demand Reduction Plans



- Utilities
- Community Planners
- Citizen Groups
- High-Demand Users
- Emergency Management Personnel
- Law Enforcement
- Fire Departments



10. Support your Local Energy Assurance Planning Team

- Participate in any planning sessions
- Provide system information upon request
- Convey recommendations to utility managers



Questions?

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